Application No. 10/516,446
Response to October 8, 2008 Office Action

Docket No. 097723.00048

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application.

- 1. (Currently Amended) A composition intended to be applied to the surfaces of freshly placed or freshly demolded mortars and/or concretes, before the beginning of setting, for the purpose of rendering them both synergistic, in order to prevent the evaporation of the water necessary for their setting and for their hardening and to create, on said surfaces, high adhesiveness of the finishing materials, which composition is provided in the form of an aqueous emulsion comprising at least one paraffin wax alone or in combination with at least one other hydrocarbon compound, comprising:
- a) at least one paraffin wax of petroleum or synthetic origin including, as a mixture, saturated and unsaturated aliphatic hydrocarbons of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is at least equal to 30 and for which the melting point is between 40°C. and 75°C;
- b) at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains, alone or as a mixture, of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is less than 30;
- at least one hydrocarbon eempound which is an oil formed of at least one ester resulting
 from the condensation reaction of a saturated or unsaturated fatty acid with an alcohol having
 from one to five hydric functional groups;
- d) at least one latex which is formed of a colloidal aqueous emulsion of at least one polymer or copolymer ehosen selected from the group consisting of homopolymers of acrylic acid, of methacrylic acid and of the esters of these acids, the ester group of which is a C₁ to C₁₂ alkyl group, copolymers of acrylic acid, of methacrylic acid or of the esters of these acids, the ester

group of which is a C_1 to C_{12} alkyl group, copolymers of vinyl and of acrylic acid or of methacrylic acid, copolymers of vinyl and of C_1 to C_{12} esters, copolymers of acrylic or methacrylic acid, copolymers of acrylic acid or of methacrylic acid and of acrylic or methacrylic esters, styrene/acrylic or methacrylic copolymers, copolymers of ethylene and of vinyl acetate, copolymers of ethylene and of acrylic or methacrylic acid, acrylic/urethane copolymers and styrene/butadiene copolymers; and

- e) at least one pulverulent filler of inorganic or organic origin.
- 2. (Currently Amended) The composition as claimed in claim 1, wherein the paraffin wax is ehosen selected from the group consisting of alkanes, alkenes, and mixtures thereof, which are saturated or unsaturated hydrocarbons of petroleum or synthetic origin of general formulae
 C_nH_{2n+2} and C_nH_{2n} in which n has a value of between 30 ≤ n ≤ 120.
- (Previously Presented) The composition as claimed in claim 2, wherein the paraffin wax has a melting point of between 50°C and 70°C.
- (Previously Presented) The composition as claimed in claim 3, wherein the paraffin wax has a density of between 0.85 and 0.95.
- 5. (Previously Presented) The composition as claimed in claim 4, wherein the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin or the at least one hydrocarbon compound which is an oil formed of at least one ester accompanying the at least one paraffin wax of petroleum or synthetic origin is chosen from the group consisting of natural or synthetic hydrocarbon waxes and oils.
- (Currently Amended) The composition as claimed in claim 5, wherein the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic

origin <u>is formed of hydrocarbon chains is a hydrocarbon oil of general formulae</u> C_nH_{2n+2} or C_nH_{2n} in which n preferably takes a value of between 10 and 25.

- 7. (Currently Amended) The composition as claimed in claim 6, wherein the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains is ehosen selected from hydrocarbon oils having a kinematic viscosity of between 5 and 500 mm²/s under standard temperatures and pressure conditions.
- 8. (Currently Amended) The composition as claimed in claim 7, wherein the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains is chosen from hydrocarbon oils having a density of between 0.83 and 0.97.
- 9. (Currently Amended) The composition as claimed in claim 8, wherein the at least one hydrocarbon eompound which is an oil formed of at least one ester resulting from the condensation reaction of a fatty-acid and an alcohol-is an oil formed of at least one ester resulting from the condensation reaction of a saturated or unsaturated fatty acid chosen from the group of the C₈ to C₂₄ fatty acids with a mono-, di- or trihydric alcohol. The composition as claimed in claim 9, characterized in that the fatty acids are chosen from the group consisting of caprylic, capric, lauric, myristic, palmitic, stearic, arachidic, behenic, lignoceric, palmitoleic, oleic, gadoleic, erucic, linoleic, linolenic and isolinolenic acids.
- (Currently Amended) The composition as claimed in claim 9, wherein the fatty acids
 are ehesen-selected from the group consisting of caprylic, capric, lauric, myristic, palmitic,

stearic, arachidic, behenic, lignoceric, palmitoleic, oleic, gadoleic, erucic, linoleic, linolenic and isolinolenic acids.

- 11. (Currently Amended). The composition as claimed in claim 10, wherein the alcohols having from one to five hydric functional groups participating in the preparation of the hydrocarbon compound which is an oil formed of at least one ester-resulting from the condensation reaction of a fatty-acid and an alcohol are chosen are selected from the group consisting of C2 to C20 alkanols and alkenols.
- 12. (Currently Amended) The composition as claimed in claim 11, wherein the monohydric alcohol is ehosen-selected from the group consisting of ethanol, propanol, butanol, pentanol, stearyl alcohol and oleyl alcohol; the dihydric alcohol is chosen from the group consisting of propanediol, butanediol, pentanediol, hexanediol, heptanediol, octanediol, nonanediol, decanediol, undecanediol and dodecanediol and other dihydroxyalkanes or -alkenes; and the trihydric alcohol is chosen from the group consisting of glycerol, butanetriol, pentanetriol, hexanetriol, heptanetriol, octanetriol, nonanetriol, decanetriol, undecanetriol, dodecanetriol and other trihydroxyalkanes or -alkenes, propane-ltri-2di-ol-propane-1-tri-2-di-ol-
- 13. (Currently Amended) The composition as claimed in claim 12, wherein the pulverulent inorganic filler is ehosen-selected from the group consisting of calcium carbonate, clays and kaolin, alumina, micro silica, silica fume and barium sulfate, used alone or as a mixture.
- 14. (Previously Presented) The composition as claimed in claim 13, wherein the pulverulent inorganic filler has a median particle size of between 1 and 100 μ m and a distribution of between 0 μ m and 300 μ m.

- (Previously Presented) The composition as claimed in claim 14, wherein the pulverulent inorganic filler has a BET specific surface of at least 1 m²/g.
- 16. (Currently Amended) The composition as claimed in claim 12, wherein the pulverulent organic filler is ehosen selected from the group consisting of -powders formed of polymers, copolymers, elastomers, thermoplastics and thermosets.
- 17. (Currently Amended) The composition as claimed in claim 15, wherein: A composition intended to be applied to the surfaces of freshly placed or freshly demolded mortars and/or concretes, before the beginning of setting, for the purpose of rendering them both synergistic, in order to prevent the evaporation of the water necessary for their setting and for their hardening and to create, on said surfaces, high adhesiveness of the finishing materials, which composition is provided in the form of an aqueous emulsion comprising at least one paraffin wax alone or in combination with at least one other hydrocarbon compound, comprising:
- a) at least one paraffin wax of petroleum or synthetic origin including, as a mixture, saturated and unsaturated aliphatic hydrocarbons of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is at least equal to 30 and for which the melting point is between 40°C. and 75°C, wherein the at least one paraffin wax is present in said composition in a proportion of 2% to 90% by weight;
- b) the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains, alone or as a mixture, of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is less than 30, is present in said composition in a proportion of 95% to 90% by weight;

- c) the at least one hydroearbon compound which is an oil formed of at least one ester resulting from the condensation reaction of a <u>saturated or unsaturated</u> fatty acid <u>with and</u> an alcohol <u>having from one to five hydric functional groups</u>, is present in said composition in a proportion of 0% to 90% by weight;
 d) the at least one latex formed of a colloidal aqueous emulsion of at least one polymer or copolymer as an emulsion in water, selected from the group consisting of homopolymers of acrylic acid, of methacrylic acid and of the esters of these acids, the ester group of which is a C₁
- the ester group of which is a C_1 to C_{12} alkyl group, copolymers of vinyl and of acrylic acid or of methacrylic acid, copolymers of vinyl and of C_1 to C_{12} esters, copolymers of acrylic or methacrylic acid, copolymers of acrylic acid or of methacrylic acid and of acrylic or methacrylic esters, styrene/acrylic or methacrylic copolymers, copolymers of ethylene and of vinyl acetate,

to C12 alkyl group, copolymers of acrylic acid, of methacrylic acid or of the esters of these acids.

copolymers of ethylene and of acrylic or methacrylic acid, acrylic/urethane copolymers and styrene/butadiene copolymers, is present in said compositions in a proportion of 10% to 45% by

weight of solids content;

e) the at least one pulverulent filler of inorganic or organic origin, is present in said compositions in a proportion of 0.01% by weight to 10% by weight;

and water: in a quantity sufficient q-s- for 100% by weight.

- 18. (Currently Amended) The composition as claimed in claim 15, wherein the composition comprises:
 - 2% to 90% by weight of at least one paraffin wax of petroleum or synthetic origin is in
 the-solid state including, as a mixture, saturated and unsaturated aliphatic hydrocarbons

- of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is at least equal to 30 and for which the melting point is between 40°C. and 75°C;
- 5% to 90% by weight of at least one hydrocarbon compound which is a linear or cyclic
 hydrocarbon oil of aliphatic or naphthenic origin are hydrocarbon chains, alone or as a
 mixture, of general formulae C_nH_{2n+2} and C_nH_{2n} for which n is less than 30;
- 5% to 90% by weight of at least one hydrocarbon eompound-which is an oil formed of at
 least one ester resulting from the condensation reaction of a saturated or unsaturated fatty
 acid with a mono-, di- or trihydric alcohol;
- 10% to 45% by weight of at least one latex formed of a colloidal aqueous emulsion of at least one polymer;
- 0.01% by weight to 10% by weight of at least one pulverulent inorganic filler with a BET specific surface at least equal to 1 m²/g;
- and water: in a quantity sufficient q.s. for 100% by weight.
- 19. (Currently Amended) The composition as claimed in claim 18, wherein the composition comprises:
 - from 5% to 60% by weight of at least one paraffin wax of petroleum or synthetic origin
 - from 8% to 40% by weight of at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains;
 - from 10% to 50% by weight of at least one hydrocarbon compound which is an oil formed of at least one ester resulting from the condensation reaction of a fatty acid and an alcohol;

- from 15% to 35% by weight of solids content of at least one latex formed of a colloidal aqueous emulsion of at least one polymer;
- from 0.02% to 5% by weight of at least one pulverulent filler of inorganic or organic origin;
- and of water: q.s. in a quantity sufficient for 100%.
- (Currently Amended) The composition as claimed in claim 19, wherein the ratio by
 weight, as-dry active material, of the total of the oils and of the paraffin wax present is at least
 equal to 0.25.
- (Currently Amended) The composition as claimed in claim 20, wherein said composition, in the emulsion form, has a dry matter content of between 10% by weight.
- 22. (Currently Amended) A process for the preparation of the composition as defined in claim 21, characterized in that the process comprises successive introduction of the various components of the composition into a preparation region subjected to stirring, the contents of which can be heated or cooled, comprising the steps of:
 - i) introducing into said preparation region a pre-determined amount of water and adding an emulsifying agent;
 - ii) stirring the water and emulsifying agent to produce a homogeneous medium;
 - iii) adding a mixture of the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin and the at least one hydrocarbon eompound which is an oil formed of at least one ester resulting from the condensation reaction of a saturated or unsaturated fatty acid and stirring for a sufficient time to produce a first emulsion;

- iv) adding a pre-determined amount of the paraffin wax into the first emulsion while stirring:
 - wherein the paraffin wax heated beforehand to a temperature sufficient to cause
 the paraffin wax to melt and to convert the paraffin wax into the emulsion state, when the
 paraffin wax is introduced in the form of a very fine powder; or
 - wherein the paraffin wax is at ambient temperature, when the paraffin wax is introduced in the form of an aqueous emulsion;

and stirring for a sufficient time to form a second emulsion, with optional cooling of the second emulsion;

- adding to the second emulsion a pre-determined amount of the at least one latex, and stirring for a sufficient time to produce a third emulsion of the paraffin, the hydrocarbons and the latex components; and
- adding to the third emulsion a predetermined amount of the at least one <u>pulverulent</u>
 perverulent filler of inorganic or organic origin and stirring for a sufficient time to form a homogenous aqueous emulsion.
- 23. (Currently Amended) A method of use of the composition as defined in claim 21 in protecting against evaporation of water and increasing the adhesion of the surfaces of freshly placed or freshly demolded mortars and/or concretes comprising spraying at least one of said compositions, as an aqueous emulsions, over said surfaces in a proportion of a working load deposited per unit of surface area of between 50 g/m² and 150 g/m² in order to achieve complete protection.
- 24. (Previously Presented) The composition of claim 4, wherein the paraffin wax has a density of between 0.88 and 0.92.

- (Previously Presented) The composition of claim 15, wherein the pulverulent inorganic filler has a BET specific surface of between 20 m.²/g and 700 m²/g.
- 26. (Currently Amended) The composition of claim 17, wherein:
 - the at least one paraffin wax is present in said composition in a proportion of 5% to 60% by weight;
 - the at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains is present in said composition in a proportion of 8% to 40% by weight;
 - the at least one hydrocarbon eempound which is an oil formed of at least one ester
 resulting from the condensation reaction of a fatty acid and an alcohol is present in said
 compositions in a proportion of 10% to 50% by weight;
 - the at least one latex formed of a colloidal aqueous emulsion of at least one polymer or copolymer as an emulsion in water is present in said compositions in a proportion of 15% to 35% by weight of solids content;
 - the at least one pulverulent filler of inorganic or organic origin is present in said compositions in a proportion of 0.02% by weight to 5% by weight;
 - and water is present: in a quantity sufficient q.s. for 100% by weight.
- 27. (Currently Amended) The composition of claim 26, wherein:
 - the at least one paraffin wax is present in said composition in a proportion of 5% to 40%
 by weight;

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- the-at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains is present in said composition in a proportion of 9% to 30% by weight;
- the at least one hydrocarbon eempound which is an oil formed of at least one ester
 resulting from the condensation reaction of a fatty acid and an alcohol is present in said
 compositions in a proportion of 15% to 40% by weight;
- the-at least one latex formed of a colloidal aqueous emulsion of at least one polymer or copolymer as an emulsion in water is present in said compositions in a proportion of 15% to 35% by weight of solids content;
- the at least one pulverulent filler of inorganic or organic origin is present in said compositions in a proportion of 0.02% by weight to 5% by weight; and water is present: in a quantity sufficient q-s- for 100% by weight.
- 28. (Currently Amended) The composition of claim 19, wherein the composition comprises:
 - from 5% to 40% by weight of at least one paraffin wax of petroleum or synthetic origin;
 - from 9% to 30% by weight of at least one hydrocarbon compound which is a linear or cyclic hydrocarbon oil of aliphatic or naphthenic origin formed of hydrocarbon chains;
 - from 15% to 40% by weight of at least one hydrocarbon eempound which is an oil
 formed of at least one ester resulting from the condensation reaction of a fatty acid and an
 alcohol;
 - from 15% to 35% by weight of solids content of at least one latex formed of a colloidal aqueous emulsion of at least one polymer;

- from 0.02% to 5% by weight of at least one pulverulent filler of inorganic or organic
 origin;
- and of water: in a quantity sufficient q.s. for 100%.
- (Currently Amended) The composition of claim 20, wherein the ratio by weight, as dry active material, of the total of the oils and of the paraffin wax present is at least equal to 0.63.
- (Currently Amended) The composition of claim 29, wherein the ratio by weight, as dry
 active material, of the total of the oils and of the paraffin wax present is between 0.64 and 9.
- (Currently Amended) The composition of claim 21, wherein said composition, in the
 emulsion form, has a dry matter content of between 30% by weight and 50% by weight.